

CLAIM AMENDMENTS

IN THE CLAIMS

This listing of the claims will replace all prior versions, and listing, of claims in the application or previous response to office action:

1. **(Currently Amended)** A direct-to-digital holography system, comprising:
an illumination lens operable to focus a reference beam;
a beam splitter optically coupled to the illumination lens by the reference beam; and
a reference mirror located at a waist of the reference beam[[,]] such that the reference beam mirror ~~operable to eliminate~~ replaces a reference objective on a reference arm.
2. **(Original)** The system of Claim 1, wherein the beam splitter comprises a cube beam splitter operable to eliminate first order reflections.
3. **(Original)** The system of Claim 1, further comprising a quarter-wave plate optically coupled between the beam splitter and the reference mirror.
4. **(Original)** The system of Claim 1, wherein the reference beam comprises a Gaussian beam.
5. **(Original)** The system of Claim 1, wherein the reference mirror comprises a flat mirror.
6. **(Currently Amended)** The system of Claim 1, further comprising the reference mirror operable to maintain optical symmetry of [[a]] the reference arm and a target arm.
7. **(Original)** The system of Claim 1, further comprising the reference mirror operable to form a first wavefront substantially similar to a second wavefront formed by the reference objective.

8. **(Currently Amended)** A method for acquiring a complex image in a direct-to-digital holography system, comprising:

focusing a reference beam with an illumination lens, the reference beam including a waist;

transmitting at least a portion of the reference beam through a beam splitter; and

reflecting the portion of the reference beam from a reference mirror located at the waist of the reference beam, the reference mirror replacing a reference objective on a reference arm.

9. **(Cancelled)**

10. **(Currently Amended)** The method of Claim [[9]] 8, further comprising forming a combined wavefront at a digital recorder, the wavefront substantially similar to a wavefront produced by the reference objective.

11. **(Currently Amended)** The method of Claim 8, further comprising the reference mirror operable to maintain optical symmetry of [[a]] the reference arm and a target arm.

12. **(Original)** The method of Claim 8, wherein the reference beam comprises a Gaussian beam.

13-32. **(Cancelled)**

33. **(New)** The method of Claim 8, further comprising the reference mirror operable to form a first wavefront substantially similar to a second wavefront formed by the reference objective.

34. **(New)** The method of Claim 8, wherein the reference mirror comprises a flat mirror.